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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,201	10/20/2003	Kenneth A. Stewart	CS23403RL	4413

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EXAMINER	
KIM, KEVIN	
ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,201	STEWART ET AL.	
	Examiner	Art Unit	
	Kevin Y. Kim	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9-13 and 16-26* is/are rejected.

7)☒ Claim(s) *7,8,14,15,27,28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the appeal brief filed on October 15, 2006, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Jay Patel, SPE

JAY K. PATEL
SUPERVISORY PATENT EXAMINER

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6,9-13 and 16-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khullar et al (US 6,400,928, previously cited) in view of Baltersee et al (US 2001/0014114).

Claim 1.

Khuller et al disclose a modulation detection device and method, see Fig.4, comprising;

receiving a signal (64),

generating a first decision statistic (a correlation quality measure) based on the received signal (70(1)),

phase rotating the received signal (68(n)),

generating a second decision statistic (a correlation quality measure) based on the phase rotated received signal (70(n)) and

determining a modulation type (either GMSK or 8-PSK) based on comparing the first decision statistic with the second decision statistic (72). See col. 8, lines 59-67.

Preliminarily, it is noted that the limitation "generating a first decision statistic based on the received signal" does not specifically exclude a case a first decision statistic is generated on a phase rotated received signal because a received "based on" which the first decision statistic is generated includes both the received signal prior to a phase rotation signal and the received signal after the phase rotation. According to one embodiment of Khullar at al, the correlation quality measures are calculated by relating the received signal to the known training sequence. See col.8, lines 24-67.

Khullar et al, however, fails to specifically teach the generation of the decision statistic measure, includes interference canceling algorithm. Baltersee et al teaches correlators (17,18) to include an adaptive finite impulse response filter (23a, 23b) in order to minimize multipath interference. See Figs.5 and 6, and paragraph [0090]. Thus, it would have been obvious to one skilled in the art at the time the invention was made to inembed interference minimizing

algorithm such as provided by the FIR taught by Baltersee et al in the generation of correlation quality measure, i.e., the claimed decision statistics, for the purpose of generating correlation quality measures with minimized interference.

Claims 2 and 3.

Khullar et al disclose generating a training sequence (reading on "an observation matrix,) from the received signal in order to correlate with the known training sequence to generate correlation quality measures.

Claim 4.

Khullar et al teaches that a modulation type having a highest correlation value is selected as the modulation type used at the transmitter. In other words, the decision statistics corresponding to hypothetical modulation types are compared with each other and a desired modulation is determined to be a first modulation type if the first decision statistic is less than or equal to the second decision statistic and vice versa, and a second modulation type if the second decision statistic is less than the first decision statistic.

Claim 5.

See col. 6, lines 52-56 describing the selected modulation type being either GMSK or 8PSK.

Claim 6.

Khullar et al disclose generating the first decision statistic based on four bursts. See col. 8, lines 30-34. The four bursts are known to comprise a radio link control block.

Claims 9.

Khuller et al disclose a modulation detection device and method, see Fig.4, comprising;

receiving a signal (64),

constructing a first decision statistic based on the received signal (70(1)) based on a first hypothesized modulation type (GMSK),

constructing a second decision statistic based on the phase rotated received signal (70(n)) and based on a second hypothesized modulation type (8-PSK),

identifying a selected modulation type (either GMSK or 8-PSK) based on comparing the first decision statistic with the second decision statistic (72). See col. 8, lines 59-67.

Khullar et al, however, fails to specifically teach the generation of the decision statistic measure, includes interference canceling algorithm. Baltersee et al teaches correlators (17,18) to include an adaptive finite impulse response filter (23a, 23b) in order to minimize multipath interference. See Figs.5 and 6, and paragraph [0090]. Thus, it would have been obvious to one skilled in the art at the time the invention was made to inembed interference minimizing algorithm such as provided by the FIR taught by Baltersee et al in the generation of correlation quality measure, i.e., the claimed decision statistics, for the purpose of generating correlation quality measures with minimized interference.

Claim 10 and 11.

See col. 6, lines 52-56 describing the selected modulation type being either GMSK or 8PSK.

Claims 12 and 13.

Khullar et al teaches phase rotating the received signal (68(n)) and the second decision statistic is generated on the phase rotated signal (thus transformed received signal).

Claim 16.

Khullar et al teaches that a modulation type having a highest correlation value is selected as the modulation type used at the transmitter. In other words, the decision statistics corresponding to hypothetical modulation types are compared with each other and a desired modulation is determined to be a first modulation type if the first decision statistic is less than or equal to the second decision statistic and vice versa, and a second modulation type if the second decision statistic is less than the first decision statistic.

Claims 17 and 18.

See col. 6, lines 52-56 describing the selected modulation type being either GMSK or 8PSK.

Claim 19.

Khullar et al disclose generating the first decision statistic based on four bursts. See col. 8, lines 30-34. The four bursts are known to comprise a radio link control block.

Claim 20.

Khuller et al disclose a modulation detection method, see Fig.4, comprising;

receiving a signal (64),

generating a first observation matrix (training sequence) from the received signal,

computing a first decision statistic (correlation) based on the received signal (70(1)),

phase rotating the received signal (68(n)),

generating a second observation matrix (training sequence) from the received signal

computing a second decision statistic (correlation) based on the phase rotated received signal (70(n)) and

determining a modulation type to be GMSK if the first statistic is less than or equal to the second statistic, and 8-PSK if the second statistic is less than the first statistic. See col. 8, lines 59-67.

Khullar et al, however, fails to specifically teach the generation of the decision statistic measure, includes interference canceling algorithm. Baltersee et al teaches correlators (17,18) to include an adaptive finite impulse response filter (23a, 23b) in order to minimize multipath interference. See Figs.5 and 6, and paragraph [0090]. Thus, it would have been obvious to one skilled in the art at the time the invention was made to inembed interference minimizing algorithm such as provided by the FIR taught by Baltersee et al in the generation of correlation quality measure, i.e., the claimed decision

statistics, for the purpose of generating correlation quality measures with minimized interference.

Claim 21.

Khuller et al disclose a modulation detection device, see Fig.4, comprising;

a receiver (64) to receive a signal ,

a modulating detector including;

a first decision statistic generator (70(1)) for generating a first decision statistic based on the received signal,

a phase rotator (68(n)) to phase rotate the received signal,

a second decision statistic generator (70(n)) for generating a second decision statistic based on the phase rotated received signal and

a determination module (72) for determining a modulation type (either GMSK or 8-PSK) based on comparing the first decision statistic with the second decision statistic (72). See col. 8, lines 59-67.

Khullar et al, however, fails to specifically teach the generation of the decision statistic measure, includes interference canceling algorithm. Baltersee et al teaches correlators (17,18) to include an adaptive finite impulse response filter (23a, 23b) in order to minimize multipath interference. See Figs.5 and 6, and paragraph [0090]. Thus, it would have been obvious to one skilled in the art at the time the invention was made to inembed interference minimizing algorithm such as provided by the FIR taught by Baltersee et al in the generation of correlation quality measure, i.e., the claimed decision

statistics, for the purpose of generating correlation quality measures with minimized interference.

Claims 22 and 23.

Khullar et al disclose generating a training sequence (reading on "an observation matrix,) from the received signal in order to correlate with an expected training sequence to generate correlations.

Claims 24 and 25.

The determination module (72) determining a desired modulation to be GMSK if the first statistic is less than or equal to the second statistic, and to be 8-PSK if the second statistic is less than the first statistic. See col.5, lines 16-47 and col. 8, lines 59-67.

Claim 26.

Khullar et al disclose generating the first decision statistic based on four bursts. See col. 8, lines 30-34. The four bursts are known to comprise a radio link control block.

Allowable Subject Matter

4. Claims 7,8,14,15,27 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 23, 2007

AU 2611

KEVIN KIM
PRIMARY PATENT EXAMINER

K. Kim